Cost-benefit analysis of publishing Marine Ecosystem Research output through Open Access 'Self-Archiving', Report for the EUR-OCEANS Consortium

Grigorov, Ivo; Bertignac, C.; Gac, D.; Swan, A.

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Cost-benefit analysis of publishing MARINE ECOSYSTEM RESEARCH output through Open Access 'Self-Archiving'

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Ivo Grigorov
CNRS/DTU-Aqua
Institut Universitaire Européen de la Mer,
Technopôle, Place Copernic,
Plouzane, 29280
France
+33 298 49 86 73
ivo_grigorov@hotmail.com

Dominique Gac
CNRS, Domaines Océaniques,
Institut Universitaire Européen de la Mer,
Technopôle, Place Copernic,
Plouzane, 29280
France
+33 298 49 85 37
dominique.gac@univ-brest.fr

Catherine Bertignac
Université de Bretagne Occidentale,
Bibliothèque La Pérouse
Technopôle, Place Copernic,
Plouzane, 29280
France
+33 298 49 88 87
Catherine.Bertignac@ifremer.fr

Alma Swan
Enabling Open Scholarship,
Key Perspectives Ltd
48 Old Coach Road
Playing Place, Truro
TR3 6ET, UK
+44 1392 879702
aswan@keyperspectives.co.uk
www.keyperspectives.co.uk

Executive Summary

The EUR-OCEANS Consortium has the ambition to fund and promote activities that ultimately publish top-level scientific research, with maximum impact and of key relevance to policy formulation, within the relatively modest financial resources provided by its core members.

The current publishing practice would place EUR-OCEANS funded/promoted publications behind a subscription barrier, thus limiting access to the desired target audience of off-campus non-academics. This strategy would require that the Consortium has sufficient resources and knowledge to correctly identifying all potential stakeholders and promote the relevant research all of the time, which is not necessarily the case.

'Open Access', through 'self-archiving', offers a legal and cost-free method for removing the subscription barrier to the Consortium's research output, and making the publications available for text-mining by non expected stakeholders, and in the process making the Consortium research more accessible, visible and citable.

Considering all financial, legal and infrastructure issues, 'self-archiving' exposes the Consortium to no additional risk with publishers, funding agencies or additional financial costs for infrastructure or implementation. The only real 'cost' of 'self-archiving' is associated with additional 15-20 min spent per article by EUR-OCEANS Consortium beneficiaries to deposit their accepted and peer-reviewed version of a publication in an open access repository.

The most significant barrier to further implementation of 'open access' is no longer technical, legal or quality-related, as each of those problems has been targeted by specialist groups over the last two decades, and publishers are adapting their position to accommodate for the funders and government pressure for open access to research. What hinders further implementation are misconception that 'self-archiving' compromises peer-review, lack of awareness of the benefits and coherent training of how to optimize on them.

Since the natural and life science tend to be behind all other disciplines in making their research openly accessible, this represents an opportunity for the EUR-OCEANS Consortium to align itself with European research funding bodies and harness the benefits in terms of impact, visibility and dissemination of research that should feed into policy formulation on global climate change and ocean ecosystem issues.

This cost/benefit analysis considers the potential risk exposure of mandating 'self-archiving' for EOC beneficiaries, and proposes an optimum roadmap and optimum policy wording considering the Consortium's objectives and resources.

Contents:

1. PROBLEM STATEMENT

Global climate change affects all parts of society and research funding agencies have increasingly demanded for orienting research towards seeking solutions of current societal issues. This is reflected in the ambitions and objectives of the Consortium 'to ***facilitate and promote top-level scientific research*** on the impacts of anthropogenic and natural forcings on ocean ecosystems' and 'activities to ***spread excellence***…., or ***knowledge dissemination to ... socio economic users***'.

As such, the EUR-OCEANS Consortium (EOC) seeks to place its modest resources into strategic funding tools that will maximize its visibility and societal impact by promoting research that is of key relevance to policy formulation. As a good number of the potential outputs of Consortium-funded activities are likely to be high-level synthesis and recommendation research papers, the latter are directly relevant to the socio-economic users the Consortium is targeting.

While data publication and data sharing practices have rapidly evolved in recent years[1], research publications in general are relatively inaccessible outside the academic sphere and to off-campus users, a problem highlighted by the UK House of Commons Science and Technology Committee (2004) [2], the Organization for Economic Co-operation and Development (2007)[3] and recently the European Commission (2007)[4].

Of all disciplines, the climate-related disciplines are low-performing in terms of making their research openly accessible relative to the fields of physics, mathematics and information technology [8]. Therefore under the current publishing practices, EOC publications would be restricted to on-campus only users, and of limited visibility to non-academic stakeholders off-campus (i.e. a key target audience of the consortium). Such a strategy relies on the EOC having sufficient resources and knowledge to identify all possible socio-economic stakeholders and disseminate its output actively all of the time.

2. PROPOSAL

Adopting an 'open access self-archiving' strategy for all EOC research output is one cost-effective means to spread excellence to all anticipated and unforeseen socio-economic users off-campus. The removal of the ever-increasing subscription barrier to EOC research will in addition:

- boost visibility[5] and impact for EOC[6];
- result in more citations for the authors (the EOC beneficiaries)[7,8,9,17];

[1] SCOR/IODE Workshop on Data Publishing, 2008 - http://www.scor-int.org/Publications/wr207.pdf
[2] UK House of Commons Science and Technology Committee Tenth Report, *Scientific Publications: Free for All*?, July 2004 - http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39902.htm
[3] OECD Principles and Guidelines for Access to Research Data from Public Funding Organization for economic co-operation and development 2007, http://www.oecd.org/dataoecd/9/61/38500813.pdf
[4] European Research Area: New Perspectives, EC 2007. http://ec.europa.eu/research/era/pdf/era_gp_final_en.pdf
[5] ASLO reports quadruple downloads for open access articles - http://aslo.org/lo/information/freeaccess.html
[6] Dewatripont et al., 2006. Study on the economic and technical evolution of the scientific publication markets in Europe, E European Commission Directorate-General for Research http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf
[7] Lawrence S. 2001, *Nature*, Volume 411, Number 6837, p. 521, 2001
[8] Eysenbach G 2006.Citation Advantage of Open Access Articles" PLoS Biology 4(5):e157
[9] Harnad, S and Brody, T (2004) Comparing the impact of open access (OA) vs. non-OA articles in the same journals. *D-Lib Magazine*, 10 (6), (www.dlib.org/dlib/june04/harnad/06harnad.html).

- facilitate training of the next generation of researchers in capitalizing on new research & data publishing practices (e.g. through summer schools);
- enable faster and greater use and application of the research output through free access;
- provide an additional vehicle for non-selective knowledge transfer of EOC research;
- provide access to smaller institutes, developing countries and society at large.

3. DEFINITION OF OPEN ACCESS

3.1 What is OPEN ACCESS?

Research is published behind a subscription barrier, with limited or no access outside the campus realm and academic sphere. Public attention was focused on the issue by the UK House of Commons Science and Technology Committee (2004) as well as the Organization for Economic Co-operation and Development (2007) in support of open access to research.

The two major means of publishing research output via open access are:

- **gold open access**, following the author-pays model whereby authors, through their research grants or institution or funder, pay the editing and publishing costs (e.g. CNRS and DFG meet cost for publication in EGU open access journals, like *Biogeosciences*); or
- **green open access** (also 'self-archiving' or 'stage two deposits'), whereby authors deposit their final version of the manuscript (referred to 'post-print' for post peer-review version) into a subject-based or institutional open access repository.

Open access repositories have for some time been part of publishing practices in Physics (http://arxiv.org/) and Economics (http://repec.org/), with the Natural and Life Sciences lagging behind in the implementation despite existing infrastructure.

3.2 What OPEN ACCESS isn't

The most common misconceptions[10,11] regarding open access include:

- open access ***undermines publication quality*** (despite high impact factor examples like the open access journals *Biogesciences* (IF= 3.445) and *PLoS Biology* (IF=14.662[12])
- open access ***undermines peer-review*** (Open Access journals and 'self-archiving' implement peer review in the same way as traditional subscription journals. The only difference is the way they disseminate their contents, through open repositories, rather than subscriptions, which most national research funders strongly support, see SHERPA/Juliet [13])
- open access is ***time-consuming*** (deposition of ready, peer-reviewed article takes as much time (or less) than electronically submitting a paper to a journal, see below).

The essence of the open access philosophy is to remove the subscription barrier to research publications. This hinders the transfer of knowledge both across the science-society interface

[10] DFG (*Deutsche Forschungsgemeinschaft*) Report 2005: Open Access to Scientific Knowledge: Experiences and Opinions of DFG-Funded Researchers, http://www.dfg.de/download/pdf/dfg_im_profil/evaluation_statistik/programm_evaluation/ib02_2005en.pdf

[11] Fry, J., et al., 2009. Publishing and Ecology of European Research (EC eContent*plus*-funded), Behavioural Research: Authors and Users vis-à-vis Journals and Repositories, Baseline report, http://www.peerproject.eu/fileadmin/media/reports/Final_revision_-_behavioural_baseline_report_-_20_01_10.pdf

[12] ICI Journal Citation Report 2008

[13] SHERPA/Juliet (EC FP7-funded)–Research funders open access policies on self-archiving: http://www.sherpa.ac.uk/juliet/

and within the scholarly research community [9]. Open access 'self-archiving' removes the subscription barrier without affecting author's choice of journal, peer-review process or other quality control processes such as copy-editing.

3.3 PROCEDURE for SELF-ARCHIVING

'Self-archiving' is the most cost effective method offered by 'open access' to remove the subscription barrier, both legally and within accepted standards supported by national and Europe-wide funding bodies. It is also most suitable option for the EOC.

'Self-archiving' refers to authors making openly available their last version of a publication, as submitted to the editors for printing after peer-review corrections, but before the editor has prepared the final, journal disseminated pdf version of the manuscript (the journal product).

'Self-archiving' is favored by most research funding agencies (see SHERPA/Juliet) and research libraries as currently the most cost-effective open access means, and in most cases, authors have the legal right to deposit their last version after peer-review in an institutional or subject based repository (see the SHERPA/RoMEO service for a database of publisher policies on permissions).

The procedure involves uploading the title, authors' names, author affiliation, abstract, keywords and text file into a repository, once the paper is peer-reviewed and ready for publication. Authors should rely on SHERPA/RoMEO for guidance on publishers' position on 'self-archiving': many of the major publishers (e.g. Elsevier) permit 'self-archiving'. In the disciplines of relevance to the EOC, available repositories include, but are not limited to, Archimer by IFREMER; HAL by CNRS; ePrints by University of Southampton; ePIC by AWI and OPENAIRE by EC FP7 Infrastructure. In addition, The Depot, a repository maintained by the University of Edinburgh to serve as a depot for articles from scientists whose own institution in the UK does not have a repository, is now accepting articles from bona fide scientists from around the world if they do not have a repository of their own to use[14].

4. COST-BENEFIT ANALYSIS for EUR-OCEANS CONSORTIUM

4.1 POTENTIAL COSTS:

The issue of copyright and author's right is not always clear to all authors, and implementing 'self-archiving' in general can expose to potential financial, legal, and time-investment risks & costs. These are evaluated below.

4.1.1 Financial Costs:

Self-archiving will imply no financial cost for the EOC. Since this is the favoured and recommended method of 'open access' publishing by funding bodies and librarians, the infrastructure and legal framework is already in place, and already used by several EOC core members (Appendix A1).

An alternative option of 'outsourcing' exists, whereby 100% open access to all EOC research output can be achieved by requesting the service from an already practicing core member e.g. IFREMER, and considering that as in-kind contribution. IFREMER Archimer archives the research output of all IFREMER PIs and costs are not excessive (e.g. 1 full day for treating

[14] The Depot @ University of Edinburgh http://www.depot.edina.ac.uk/

and archiving on average 10 publications). Neither option impacts the EOC budget, if the latter is negotiated as in-kind contribution, and both can potentially achieve the target of 100% access to all EOC research output. The long term, sustainable solution however would be to educating authors of the benefits of 'self-archiving' themselves through a position statement and a request to 'self-archive' in return for funding.

4.1.2 Time investment cost:

No time costs are associated with self-archiving for the funding organization (i.e. EOC). Self-archiving requires that authors deposit in a repository the author's final version as submitted to the editor after peer-review corrections, therefore no additional time is required to produce a new format, or version, of the article-to-be-published. The only time costs for the authors associated with self-archiving are related to uploading the article title, authors, affiliations, abstract, keyword and the final, corrected version of the manuscript to an existing open access repository (15-20 min per article depending on number of co-authors).

4.1.3 Legal Issues and conflict with publishers policies

The major private commercial publishers producing journals in the research disciplines of relevance to EOC interest allow 'self-archiving' of the author's last version of a manuscript (Appendix 2).

All official repositories (e.g. operated by CNRS-INSU, IFREMER, University of Southampton) are compliant with publishers policy on 'self-archiving' as published on SHERPA RoMEO [15] and therefore there is no legal risk for EOC if authors archive their own last version only (see Sherpa/RoMEO for some exceptions when even the journal's own edited pdf can be archived in open access repositories).

4.1.4 Conflict with beneficiaries

Open access 'self-archiving' is practiced by a number of the EOC core members already, and the strongest objections to 'self-archiving' by authors are related to misconceptions about 'self-archiving' regarding quality of peer-review, legality and time investment (see Section 3.2 What OPEN ACCESS ***isn't***). The *Deutsche Forschungsgemeinschaft* surveyed 1,600 of its beneficiaries across research disciplines and concluded that the strongest opposition to 'self-archiving' open access recedes in proportion to the amount of experience respondents had with electronic publications in general and open access publications in particular[16].

Lack of knowledge of 'how' and 'where' to self-archive was also identified as a key barrier to self-archiving [10].

With respect to EOC research output, NERC-NOCS (UK), AWI (Germany) and IFREMER (France) already automatically archive all research co-authored by their PIs, and CNRS, (France) provide significant national infrastructure. Therefore EOC's engagement on the issue will serve to communicate existing practices and benefits to the rest of its members, rather than impose a new layer of responsibilities to beneficiaries.

[15] SHERPA/RoMEO (EC FP7-funded) - Publisher copyright policies & self archiving: http://www.sherpa.ac.uk/romeo/

[16] DFG (*Deutsche Forschungsgemeinschaft*) Report 2005: Publishing Strategies in Transformation? Results of a study on publishing habits and information acquisition with regard to open access, http://www.dfg.de/download/pdf/dfg_im_profil/evaluation_statistik/programm_evaluation/oa_report_eng.pdf

4.2 POTENTIAL BENEFITS

4.2.1 Access = Citations & Impact

Once deposited into an open access repository, articles are indexed by open reference search engines (e.g. Google Scholar) and exploitable by text-mining tools, thus increasing the visibility of the article (complete reference to the journal article is included by default by all official 'open access' repositories). It has been shown that simply by making a research article accessible by removing the subscription barrier, it is more frequently read, downloaded, and eventually cited more than an equivalent article in the same journal available to subscribers only [5,6,7,17,18,19].

This advantage can either be due to purely access, or in some cases self-selection i.e. authors preferentially making accessible those papers that are most cited, thus making them more accessible and more cited. The citaiton advantage particualrly favours those who act early and make their work available to all as quickly as possible after peer-review. The Open Access Citaiton Advantage is composed of a number of elements and the Early Advantage element would still persist, even if a discipline converted all its research to open access overnight

4.2.2 Economic Advantage of OA

Several publications published in 2010 model the economic benefits of open access to nations [20, 21] and to individual institutions [22]. For institutions, it is possible to model what the costs of the scientific communication process are, and how institutions would save money if they were a shift to open access. The benefits come from efficiency and process savings, but there are also savings that return to the research effort in general, a type of societal benefit from open access that can be quantified in monetary terms.

Although the economic benefits are of limited relevance to the EOC budget, the Consortium would provide greater return on investment for its core members by optimizing on the impact of its research output. In addition, EOC core member institutions themselves can capitalize on the economic benefits.

4.2.3 Funders Position on Open Access

Across Europe most research funders accept the advantages of open access to the funders and the authors, and have an official position in support of 'self-archiving' of research produced by their beneficiaries (see SHERPA/Juliet). Examples of funding agencies that have mandatory policies on this are the European Research Council, all the seven UK Research Councils, the Irish Research Council for Science, Engineering & Technology (IRCSET), Science Foundation Ireland, Research Foundation Flanders, the Austrian Research Foundation, the Norwegian Research Council, the Swedish Research Council, the Swiss National Science Foundation and the European Commission for 20% of FP7-funded research.

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[17] Brody, T., Harnad, S. and Carr, L. (2006) Earlier Web Usage Statistics as Predictors of Later Citation Impact. *J. of the Am. Assoc. for Information Science and Technology (JASIST)*, 57 (8), pp.1060-1072. http://eprints.ecs.soton.ac.uk/10713/

[18] Open Citation Project (jointly funded by NSF,US and JISC,UK) offers an up-to-date list of peer-reviewed articles analyzing the citation difference between open access and subscription-only articles, across disciplines

[19] Swan, A., 2010. The Open Access citation advantage: Studies and results to date. http://eprints.ecs.soton.ac.uk/18516/

[20] Houghton, J.W. et al., 2009. *Economic Implications of Alternative Scholarly Publishing Models: Exploring the Costs and **Benefits***, Report to The Joint Information Systems Committee (JISC) by Victoria University & Loughborough University http://www.cfses.com/EI-ASPM/

[21] Knowledge Exchange comparative report on Costs and Benefits of Open Access http://www.knowledge-exchange.info/Default.aspx?ID=316

[22] Swan, A., 2010. Modeling scholarly communication options: Costs and Benefits for Universities, JISC Report http://ie-repository.jisc.ac.uk/442/

Adopting a strong, pro-open access policy will align the EOC with these European bodies for research funding and promotion, and with the EC's recent interest in open access 'self-archiving'. The issue of efficient knowledge sharing between research and society at large was highlighted in the 'European Research Area: New Perspectives' green paper [4], followed by issue of FP7 Special Clause 39[23] for Grant Agreements in 2008, and FP7 Open Access Pilot in 2009[24], as well as in financial support for FP7 Infrastructure DRIVER and OPENAIRE Projects for setting up a network of interoperable European repositories for research archiving[25]).

4.2.4 Complementary to EUMARINE proposal (ENV.2010.2.2.1-3) & MarBEF NoE

Open access offers the similar long term benefits for research publishing as recent data management practices have brought to data sharing (both between research teams and public access) through the EUR-OCEANS NoE and all FP Integrated Projects.

The 'self-archiving' type of open access is already partly implemented by the MarBEF NoE through the MarBEF Open Archive[26]. The approach is also highly complementary to the WP4 Scientific Data Integration of the FP7 EUROMARINE proposal (ENV.2010.2.2.1-3 Coordination actions to support FP6 NoEs durable integration).

A notable example is the recent Elsevier-PANGAEA® reciprocal linking between their respective contents, whereby research data sets deposited at PANGAEA® are now automatically linked to the corresponding articles in *Elsevier* journals - and vice versa, using DOIs as a common basis for cross-referencing their holdings. Adding 'self-archiving' to the partnership means greater and faster access to both data and publications for researchers and off-campus users alike.

5. CONCLUSIONS

Considering all financial, legal and infrastructure issues, 'self-archiving' exposes the EOC to no additional risk with publishers, funding agencies or additional financial costs for infrastructure or implementation. 'Self-archiving' is already favored by European funders and practiced to a various degree across research institutions, with the physical and mathematical disciplines outperforming other fields of research in that respect.

The most significant barrier to further implementation of 'open access' is no longer technical, legal or quality-related as each of those problems has been targeted by specialist groups over the last two decades. What hinders further implementation is the misconception that the process is laborious and time-consuming, lack of awareness of the full benefits, and lack of training for efficient integrating into current publishing practices.

Since the natural and life science tend to be behind all other disciplines in making their research openly accessible, this represents an opportunity for the EOC to lead by example and harness the benefits in terms of impact, visibility and dissemination of research that should feed into policy formulation on global climate change and ocean ecosystem issues.

[23] EC FP7 Grant Agreeement (2008), Special Clause 39
http://ec.europa.eu/research/press/2008/pdf/annex_1_new_clauses.pdf
[24] EC FP7 Open Access Pilot http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1680
[25] EC FP7 Infrastructure OPENAIRE, www.openaire.eu/; DRIVER http://www.driver-repository.eu/
[26] MarBEF Open Archive http://www.marbef.org/modules.php?name=moa

6. ROADMAP FOR CAPITALISING ON 'SELF-ARCHIVING'

The following steps are independent of each other, and are presented in terms of desired commitment to put in place a potential policy.

PROPOSED ACTION	REASON or BENEFIT	Arbitrary measure of commitment
1) Issue a statement on EOC website only	Declare a position on 'open access to research'	0
2) Sign Berlin Declaration	Join CNRS, IRD, CERN, Max Planck and make an official and internationally recognized position statement, according to this Core Document on OA (see Appendix A3 for procedure)	1
3) Include a 'self-archiving' mandate in the next call: EOC beneficiaries to deposit all resulting research publications (at publication date) into any established OA repository	Optimize visibility, impact and citations for both author and EOC; **make 100% of EOC research available** to unforeseen socio-economic users. (see *Appendix A4 for a optimum policy example that considers publishers' embargoes*)	2
4) Demand proof of 'self-archiving'*	'Monitoring and enforcing' mechanism*	3
5) Train young scientist to maximize on e-science: latest research and data publication practices, in all future EOC-organized/co-funded summer schools	Improve research and data publication practices in the climate-related natural sciences	4

* although used for internal research assessment at MIT, University College London, University of Liege and Queensland University of Technology, raising awareness of the benefits of citations and visibility for authors can be just as effective in achieving the sought-after effect if sufficiently well communicated to potential beneficiaries both at time of selection (i.e. in call text) and at fund transfer stage.

APPENDIX

A1 EOC Core members Open Access development

Country	Short name	Berlin Declaration Signatory	Open Access Repository	Open Access Policy
Denmark	DTU Aqua			
Finland	FIMR			
France	IFREMER		Archimer	policy
	INSU	YES	HAL	policy
	IRD	YES	Serviced by Archimer	
	UBO		HAL-UBO	
	UPMC			
	ULCO			
	USTL			
	UnivMed			
	CLS			
Germany	AWI		ePIC	
	UniHB		PANGAEA	policy
	UniHH			policy
Greece	HCMR			
Italy	CNR			
	CoNISMa			
	SZN			
	OGS			
Latvia	LATFRA			
Norway	NTNU			
	Un Oslo		DUO	policy
Spain	AZTI			
Sweden	Stockholm Un	YES	DIVA	policy
UK	BAS		NORA by NERC	
	NOCS		ePrints	policy
	PML		SABELA	

DTU Aqua - Denmark National Institute of Aquatic Resources - F. Köster
FIMR - Finland Finnish Institute of Marine Research - E.-L. Poutanen
IFREMER - Institut Français de Recherche pour l'Exploitation de la Mer - M. Heral
INSU - Institut National des Sciences de l'Univers - D. Le Queau
IRD - Institut de Recherche pour le Développement - M. Laurent
UBO - Université de Bretagne Occidentale - P. Olivard
UPMC - Université Pierre et Marie Curie - F. Mantoura
ULCO - Université du Littoral de la Côte d'Opale - R. Durand
USTL - Université des Sciences et Techniques de Lille - I. Shahrour
UnivMed - Université Aix-Marseille 2 - B. Queguiner
CLS - Collecte Localisation Satellites - P. Gaspar
AWI - Alfred Wegener Institut - M. Reinke
UniHB - Universität Bremen - G.-R. Kück
UniHH - Universität Hamburg - H. S. Stiehl
HCMR - Greece Hellenic Center for Marine Research - G. Chronis
CNR - Consiglio Nationale delle Ricerche - G. Cavarretta
CoNISMa - Consorzio Nazionale Interuniversitario per le Scienze del Mare - C. Corselli
SZN - Stazione Zoologica 'A. Dohrn' Napoli - M. Ribera
OGS - Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - A. Crise
LATFRA - Latvia Latvian Fish Resources Agency - M. Vitins
NTNU - Norway - Norwegian University of Science and Technology - T. Digernes
AZTI - Spain Fundacion AZTI - R. Pozo
BAS - British Antarctic Survey - C. Ellis-Evans
NOCS - National Oceanographic Centre Southampton - E. Hill
PML - Plymouth Marine Laboratory - P. Claridge

A2 Editors permitting of 'self-archiving'

A selection of journals of potential EOC interest, and their policy towards 'self-archiving'

Publisher	Journals of EOC interest	Self-archiving allowed		
		Author's version post-peer review	Publisher's PDF version	Cost for archiving publisher version
American Association for the Advancement of Science	Science	✓	✗	-
American Geophysical Union (AGU)		✓	✓ free after 6 months	$
Cambridge University Press (CUP)	Journal of Plankton Research	✓	✗	-
Elsevier		✓	✗	$
Inter Research	Marine Ecology Progress Series	✓	✓ free after 4 yrs	✓ $
John Wiley & Sons		✓	✗	$
Royal Society, The		✓	✗	$
Springer Verlag (Germany)		✓	✗	$
Wiley-VCH Verlag Berlin		✓	✗	-
European Geosciences Union (EGU)		✓	✓	$

Source:

http://www.sherpa.ac.uk/romeo

A3 Berlin Declaration – Description, Signatories, How to sign?

The Berlin Declaration on Open Access
Sponsored by the German Research Foundation (DFG) and Max Planck.

The Berlin Declaration recognizes that dissemination of high quality research publications is only half complete if the latter are hidden behind subscription charges or only available to on-campus users, and not widely and freely available to society and non-academic stakeholders[27,28]. The declaration therefore defines 'open access' as 'a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community'.

Following a conference on 'Open Access to Knowledge in the Sciences and Humanities' in Berlin in 2003, the Max Planck Society initiated the signing of the Berlin Declaration on 'Open Access to Knowledge in the Sciences and Humanities'[29].

Source: Berlin Declaration - http://oa.mpg.de/openaccess-berlin/berlindeclaration.html

The signatories include EUR-OCEANS Consortium core members IRD, France, and CNRS, France (see list of relevant signatories below), as well as European Geosciences Union, and CSIC, Spain. The European Research Council (ERC) [30], Natural Environment Research Council (NERC, UK)[31], FP7[32] all mandate that beneficiaries deposit their research publications in open access repositories, and IFREMER[33] and National Oceanography Center, Southampton[34] libraries actively deposit 90-100% of those institutions' publications.

Signature by the Consortium would make clear its position and commitment, not only to fund cutting edge research of direct socio-economic relevance, but also to disseminate the recommendation of that research freely to socio-economic user and society at large.

Precedent for a 'Consortium' signature: The European Research Consortium for Informatics and Mathematics identified as "Cross-national Research Association/Union/Umbrella Organization" (see http://oa.mpg.de/openaccess-berlin/signatories-extended.html) is similar to the EUR-OCEANS Consortium, and has successfully signed in 2006.

Procedure:

[27] OECD Principles and Guidelines for Access to Research Data from Public Funding, 2007- http://www.oecd.org/dataoecd/9/61/38500813.pdf
[28] Science and Technology Committee reporting to the House of Commons, UK, July 2004 - http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39902.htm
[29] Berlin Declaration of Open Access to Knowledge - http://oa.mpg.de/openaccess-berlin/berlindeclaration.html
[30] European Research Council http://erc.europa.eu/pdf/ScC_Guidelines_Open_Access_revised_Dec07_FINAL.pdf
[31] NERC-UK , http://www.nerc.ac.uk/about/access/
[32] EC FP7 - http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1680
[33] IFREMER - http://www.ifremer.fr/docelec/results2008.htm
[34] NOC, UK – Jane Stephenson, Library Services, National Oceanographic Library, pers comm.

The highest respresentative of the consortium (executive director or the scientific coordinator) should contact the Max Planck president Peter Gruss (CC to Anja Lengenfelder, below) and give him the following details (see also the extended table of signatories, URL mentioned above):

Sign Date:
Organisation:
Organisation (en):
Abbreviation:
Abbreviation (en):
Person:
Position:
Position (en):
City:
Country:

In addition, Anja Lengenfelder recommends that the consoritum name a contact person on the working level for further communication concerning the Berlin process (e.g. Pierre-Francois Baisnée).

Contact for signing the Berlin Declaration:

Anja Lengenfelder
Open Access Policy
Max Planck Digital Library
Amalienstrasse 33
80799 Muenchen/Munich
Germany
Phone: +49 89 38602 241
Fax: +49 89 38602 290
Mail: lengenfelder@mpdl.mpg.de
Internet: www.mpdl.mpg.de

Prof. Dr. Peter Gruss
President of the Max Planck Society
Hofgartenstraße 8 D-80539 Munich
Germany e-mail: praesident@gv.mpg.de

A4 Optimum open access policy

The optimal institutional Open Access policy*

The following optimal wording for an Institutional Policy on Open Access for [institution] is recommended to accommodate publisher embargoes:

The [institution name] expects the authors of papers reporting publicly-funded research to maximise the accessibility, usage and applications of their findings. To this end:

The [institution name]:

(1) requires electronic copies of any research papers that have been accepted for publication in a peer-reviewed journal, and are supported in whole or in part by public funding, to be deposited into the institutional digital repository immediately upon acceptance for publication.

(2) requires that the metadata (title, authors, institutional affiliation, name of journal that has accepted the paper) be exposed from the time of deposition of the research paper

(3) requires that the full-text be exposed no later than 6 months after publication of the research paper

(4) encourages authors to retain ownership of the copyright of published papers where possible

The policy should be accompanied by an explanation to authors as to why Open Access to research outputs is desirable for both themselves and the institution.

*The policy example below is based on the UK's Wellcome Trust Open Access Policy, on which EC FP7 Special Clause 39 for Grant Agreements is also modeled (see Appendix A3)

Source:
Enabling Open Scholarship
http://www.openscholarship.org/jcms/c_6214/the-optimal-institutional-open-access-policy

A5 EC FP7 Special Clause 39

OPEN ACCESS (SPECIFIC TO THE THEMATIC AREAS "HEALTH", "ENERGY", "ENVIRONMENT (INCLUDING CLIMATE CHANGE)", "INFORMATION & COMMUNICATION TECHNOLOGIES" (CHALLENGE 2), AND "SOCIOECONOMIC SCIENCES AND THE HUMANITIES", AS WELL AS TO THE ACTIVITIES "RESEARCH INFRASTRUCTURES" (E-INFRASTRUCTURES), AND "SCIENCE IN SOCIETY")

In addition to Article II.30.4, *beneficiaries* shall deposit an electronic copy of the published version or the final manuscript accepted for publication of a scientific publication relating to *foreground* published before or after the final report in an institutional or subject-based repository at the moment of publication.

Beneficiaries are required to make their best efforts to ensure that this electronic copy becomes freely and electronically available to anyone through this repository:

- immediately if the scientific publication is published "open access", i.e. if an electronic version is also available free of charge via the publisher, or

- within [X] months of publication.

The number X will be 6 months in the thematic areas "Health", "Energy", "Environment (including Climate Change)", and "Information & communication technologies" (Challenge 2) and the activity "Research infrastructures" (e-infrastructures), and 12 months in the thematic area "Socio-economic Sciences and the Humanities" and the activity "Science in Society".

Source:
http://ec.europa.eu/research/press/2008/pdf/annex_1_new_clauses.pdf